OCULO-MOTOR PARALYSES PRESENTING DIFFICULTIES IN DIAGNOSIS

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OCULO-MOTOR PARALYSES PRESENTING DIFFICULTIES IN DIAGNOSIS.

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The following three cases of paralysis of the muscles of the eye-ball supply many points of interest and present several difficulties in diagnosis.

Case I. M. P., a man aged fifty-four years, was admitted to the Royal Infirmary under my care on the forenoon of 15th April, 1895, on account of giddiness and inability to stand. While at the Waverley Station about nine o'clock on the morning of admission he was seized with giddiness and would have fallen had he not been assisted to the waiting-room by his wife and some bystanders. When in the station waiting-room he had an attack of vomiting, and it was found that he was unable to stand. He was, therefore, brought to the Infirmary.

On admission it was found that he could walk, but in a rather unsteady fashion, and that he had slight ptosis on the left side. Although the patient was somewhat dazed he answered all the questions addressed to him. As the pulse

was very weak he was at once put to bed with warm applications, and some sal volatile was administered to him. When seen by me at noon he was completely paralysed in the right leg and arm. The right side of the face, although not drawn over to the left, had lost some of its characteristic lines, and when the patient breathed there was a tendency to puffing out of the right half of the mouth. Sensibility was everywhere unimpaired.

The most interesting points in the case, however, centred in the condition of the left eye, in which ptosis was well marked; there was also divergent strabismus along with wide dilatation of the pupil. The patient, who is represented in the accompanying illustration, fig. 1, was therefore an excellent example of one form of alternate paralysis.

FIG. 1.

At the time of my examination the patient was unable to reply to any questions which were put to him, and it was, therefore, somewhat difficult to investigate the movements of the left eye-ball. His temperature was somewhat below 68° F., his pulse rate was 80, and the number of his re-

spirations 20. The arteries were hard and tortuous ; the blood pressure was high. The temporal arteries were unduly prominent and very sinuous. The first sound of the heart in the mitral area was loud and rough, the second sound in the aortic area was clear and ringing in quality. There were no further abnormalities connected with the circulatory system ; there was no albuminuria and no evidence of disease elsewhere.

In this case there could be no difficulty with regard to the localisation of the lesion. We were unable on account of the dulness of the patient's mental condition to investigate the movement of the eye-ball as thoroughly as we should have liked, but there could be no doubt that there was complete paralysis of the third cranial nerve, supplying the muscles of the left eye. As there was loss of movement in the face and limbs of the opposite side the conclusion was quite obvious that some lesion must be present implicating the left crus cerebri and the third nerve passing round it. Anatomical facts demanded that if one lesion were responsible for the various symptoms presented by the case, such a localisation could alone account for them by implicating at once the left third nerve and the motor fibres passing to the face, arm, and leg of the opposite side.

On attempting to formulate a pathological diagnosis we could not feel on such certain ground. From the anatomical position of the lesion embolism was in the highest degree unlikely, and there was, moreover, no cardiac condition to give rise to it. The condition of the blood-vessels was such as to favour almost equally either hæmorrhage or thrombosis as a sufficiently plausible explanation of the symptoms ; but, in consequence of the mental disturbance, it seemed to me more probable that hæmorrhage from one of the arteries about the base of the brain was the cause of the affection, and that by compression it had produced the interference with the mental processes. The patient was therefore

treated by the application of an ice-bag to the head and free aperients.

On the following day with a temperature absolutely normal, pulse 84 and respirations 28, he had somewhat recovered the power of speaking, although his utterance was very indistinct, and the condition of leg, arm, and face remained as before. From the greater intelligence of the patient it was easy to determine the state of the ocular muscles. Left-sided ptosis was well marked, the left pupil was widely dilated, and the patient was unable to turn the affected eye inwards, upwards, or downwards; showing that the internal, superior, and inferior recti were paralysed. On examining the eye with the ophthalmoscope it was found that there was no optic neuritis.

On the two days which followed, the temperature fluctuated slightly, being over 100° at noon on the 19th April. The pulse, on the other hand, had fallen to some extent as it was only 70, and the respirations had sunk to 22. The patient, however, was more stupid and he had involuntary evacuations. It was carefully noted on these days that the pupils were quite equal, but in other respects the paralysis remained as it had been previously.

On the 20th April the temperature rose, and at noon was 102°. The pulse was 100 and the respirations 32. In consequence of this, and fearing an extension of the hæmorrhage probably present, unless some powerful steps were taken to avert it, it seemed to me advisable to have recourse to general blood-letting, and Dr. Garbutt, the resident physician, accordingly proceeded to perform arteriotomy upon the right temporal artery.

The temperature of the four succeeding days remained for the most part below 100°, and the pulse was usually below 90. The respirations fluctuated considerably, but were almost always below 30. The patient during these days was rather more sensible, but the paralysis remained in the same con-

dition. One curious symptom was the development, on the evening of the 21st April, of large red wheals of erythema exudativum multiforme on both gluteal regions, which, on the 22nd, had spread all over the back.

On the 25th another rise of temperature took place in the evening to 102°, but during the night it fell under the influence of gentle antipyretics, and at eight next morning was normal. The pulse on the evening of the 25th rose to 124 and the respirations to 36. On the evening of the 26th the temperature once more ran up almost to 102°, with a pulse rate of 136 and respiration rate of 48. On the 27th, the temperature in the afternoon suddenly bounded up from 99° to 105°, the pulse remained at 136, the respirations were 60. The pulse was very feeble and flickering, and the respirations extremely shallow. On the evening of this day the patient suddenly died from respiratory failure.

At the *post-mortem* examination, which was made by Dr. Leith on the following day, it was found that there was no hæmorrhage, but there was thrombosis of the posterior cerebral artery on the left side, whereby the blood supply to the left crus and third nerve was entirely stopped. There was, in addition, some subacute meningitis affecting the vertex upon the left side.

In this case the anatomical diagnosis could scarcely be other than a matter of almost mathematical certainty, but the pathological diagnosis arrived at was, as has been seen, erroneous. It is difficult to see how the mistake in regard to the nature of the lesion could have been avoided. The mental symptoms and the fluctuating temperature, both of which were no doubt produced by the coincident cortical lesion, were exactly such as would have been present in cerebral hæmorrhage, and as none of the symptoms seemed to require the diagnosis of more than one lesion we were led to a wrong pathological conclusion.

Case II. E. N., a girl aged eleven months, was, on the

recommendation of Dr. Cattanach, admitted to the Deaconess Hospital under my care on 14th May, 1895, on account of frequent vomiting and rapid wasting; it was observed on admission that there was complete ptosis of the right eye.

It was somewhat difficult to obtain any clear account of the patient's history, but we ascertained that the patient during the last three weeks before admission had been constantly giving utterance to "a wearied, dwining cry". For this she was seen by Dr. Robertson of the Royal Public Dispensary, who

FIG. 2.

thought it was probably connected with teething and ordered appropriate remedies. The patient's mother stated that the right eye was open on the Wednesday morning before admission, but by Saturday it was closed.

On examination the patient was found to be pale, but by no means badly nourished. Her weight was 14 pounds. The tongue was somewhat furred, and diarrhœa was present. The temperature was 101°, the pulse 140, and the respirations 70. The child could move her limbs perfectly, the knee-jerks

were normal, sensibility was everywhere perfect, in fact there were no nervous symptoms excepting those connected with the right eye. Ptosis was complete on the right side, and on elevating the lid the pupil was found to be widely dilated and insensible to light. The left pupil was moderately contracted and reacted perfectly to light. The left eye followed an object pretty well, the right eye remaining slightly everted. While the anterior fontanelle was widely opened, there was no enlargement of joints. The patient is represented in the accompanying illustration, fig. 2.

It was extremely difficult in this case to formulate any diagnosis, and any lesion causing the paralysis of the third nerve must of necessity be extremely localised. The explanation which appeared to me to be most probable was that of a commencing tubercular mass involving the right third nerve.

The patient was fed on peptonised milk, and, in order to get rid of the diarrhœa, very small doses of the liquor of the perchloride of mercury were also administered. The temperature oscillated between 97·6° and 103·6°, the pulse varied from 96 to 180, and the respirations fluctuated between 52 and 84.

Upon the morning of the 19th the baby passed quietly away. The *post-mortem* examination, which was made next day by Dr. Cattanach, the resident medical officer, revealed no lesion observable by the naked eye in connection with the third nerve, but there was a large hæmorrhage involving the Sylvian region on the left side of the brain. This hæmorrhage spread forwards so as to involve that part of the motor area which by recent investigation has been found to be the centre for the movement of the levator palpebræ superioris and other ocular muscles, and it was, therefore, matter for debate whether this lesion could not account for the ocular paralysis. Dr. Aldren Turner kindly undertook the thorough investigation of the brain, and he

reports that sections of the right third nerve in its intra-cranial portion show an excessive amount of blood in the nerve and in the adjacent pia-arachnoid mater, with distension and tortuosity of the fascicular capillaries, and, in several situations, rupture of the capillary walls with effusion of blood amongst the nerve fibres.

In this case, therefore, the diagnosis of a tubercular lesion was incorrect, and the possibility of the paralysis depending upon a lesion of the cortical centre arising from the naked-eye appearances of the brain was negatived by the investigation of the minute anatomy.

CASE III. J. T., a man aged thirty-four, married, was, on the recommendation of Dr. Cattanach, admitted to the Deaconess Hospital under my care on the 21st February, 1896, complaining of general weakness which had been increasing for about a year.

The patient's previous occupation was that of a house-painter, but he had not been working since the beginning of 1895. He had been very much addicted to alcohol, and about New Year, 1895, when in a drunken fit he drank a quantity of petroleum by mistake. He had never been well since this misadventure, and for months was greatly troubled by sickness. For three months in the summer of 1895 he was in the Royal Infirmary suffering from continuous vomiting and progressive wasting. Sixteen years ago the patient suffered from venereal disease while in London, and went to the Royal Infirmary of Glasgow for treatment. With the exception of this disease he had otherwise been in good health during the rest of his life.

On admission the patient was very bloodless in appearance and the skin showed a yellowish tint. Some scars were visible on both legs. The appetite was good, tongue clean, and digestive functions generally well performed.

The hæmoglobin amounted to 38 per cent. The red corpuscles were 2,900,000. The white corpuscles were

apparently normal in number. The spleen and lymphatic glands were not enlarged. The circulatory, respiratory, and urinary systems showed no departure from health.

The patient's countenance was expressionless, and there was almost complete ptosis of the left eye. On raising the upper eye-lid external strabismus was seen along with wide dilatation of the pupil. The patient was unable to follow objects with the left eye in any direction, the eye being persistently everted. The iris did not contract to any stimuli, in

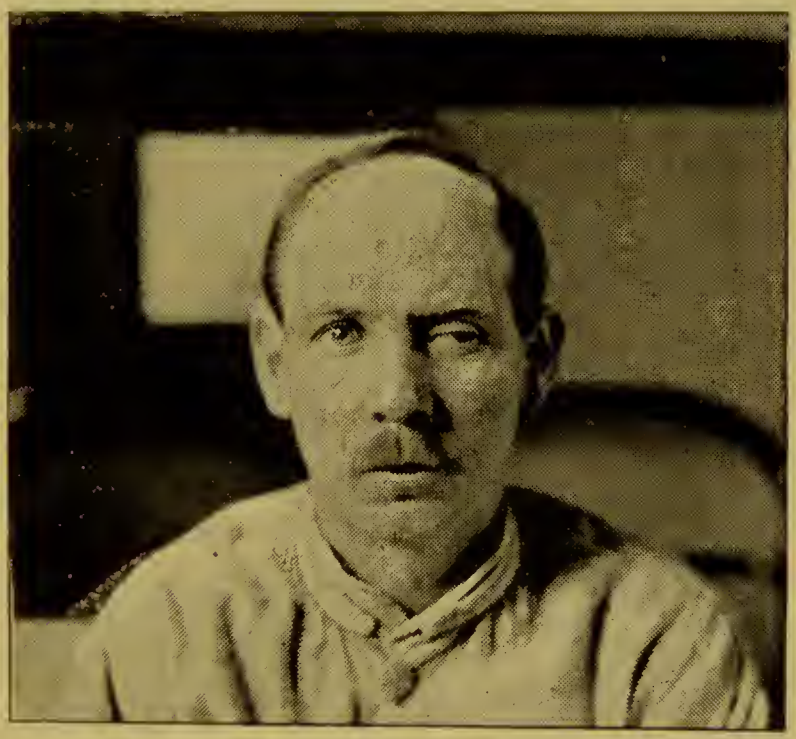

Fig. 3.

fact all the muscles supplied by the third nerve seemed to be paralysed. The patient's voice was somewhat thick and monotonous. The articulation was slow and scanning. There was, however, no failure in pronouncing any of the ordinary test words. The intelligence was decidedly defective. His appearance is given in fig. 3.

The interesting fact was ascertained that the patient had, six weeks before admission, been seen by one of the physicians of the Royal Infirmary when he was suffering from severe

supra-orbital neuralgia on the left side without any ptosis, which must therefore have developed during the interval between the visit which he paid to the Infirmary and his entrance into the Deaconess Hospital.

There could in this case be little difficulty in diagnosis. The past history and the presence of scars on the limbs furnished strong evidence in favour of syphilis, and the rapid development of the ptosis seemed therefore to be probably produced by the formation of a gumma in the base of the brain implicating the third nerve. The deliberate speech and monotonous voice seemed explicable also in the same way.

The patient was treated with iodide of potassium, ten grain doses being administered three times a day, the amount being doubled on the 1st of March. Under this treatment he rapidly improved. Within a week the eye-lid could be raised somewhat, although the squint remained in the previous condition. His weight at the same time rapidly increased from 8 st. 9 lb. to 8 st. 13 lb. On the 4th March at his urgent request the patient was allowed to leave the Hospital, but came to report himself from time to time, and by the 24th March he had entirely lost the ptosis, the squint, and the dilatation of the pupil. His voice also became less monotonous and his articulation greatly improved. The result of treatment in this instance afforded conclusive therapeutic evidence in favour of the diagnosis which had been arrived at, and it shows how very amenable to treatment many of these specific basal lesions are when taken in hand early. The case does not in any sense conform to the type of those presenting difficulties of any kind, but having occurred about the same period as the two previously under treatment, it may well have a place beside them.